

Patent claims

1. A valve drive for a gas exchange valve in a power engine or processing engine, with a magnetic rotor which, along with a rotor section positioned at a distance from the gas exchange valve, extends in a longitudinally movable manner inside a bushing of a stator provided with a current coil, which [stator] has a tooth area forming a magnetic frame, as well as with one end of the rotor projecting out from the stator in the direction of the gas exchange valve, which rotor, upon the excitation of the current coil, activates the gas exchange valve, **characterized in that**, the rotor (12) is, in the area of the rotor section, constructed in the stator (1) as a vertically moved rotor plate (11), preferably in accordance with the type of a flat-body slide valve, in which several magnetic parts (21) are oriented, preferably in several planes.
2. A valve drive in accordance with claim 1, **characterized in that**, in the base area of the stator (1), which is oriented towards the gas exchange valve (4), at least one bushing (8) adjusted to the cross-sectional contour of the rotor plate (11) is provided, through which [bushing] at least one rotor bar (14) connecting the rotor plate (11) with a coupling element (17) extends.
3. A valve drive in accordance with claim 2, **characterized in that**, the base area of the stator (1) is designed as a rectangular, level first stator plate (9a), which has the bushing (8) for the rotor bar (14) on the center of its longitudinal axis.
4. A valve drive in accordance with claim 3, **characterized in that**, on both sides of the bushing (8), at least one pair of current coils (18) is positioned on the first stator plate (9a), on which [coils] a second level stator plate (9b) is applied, which [plate] has at least one second bushing (8) equivalent to the first bushing (8) as well as aligning with the same, with a tooth area (20) positioned on both sides of the second stator plate (9b).

5. A valve drive in accordance with claim 4, **characterized in that**, above the side of the second stator plate (9b) oriented away from the current coils (18), a third stator plate (9c) is positioned, which is separated from the second stator plate (9b) by means of at least one pair of spacers (10).
6. A valve drive in accordance with claim 5, **characterized in that**, a bushing (8) with a tooth area (20) is provided in the third stator plate (9c), which [bushing] is oriented to align with the first and the second bushing (8).
7. A valve drive in accordance with claim 5, **characterized in that**, at least one pair of current coils (18) is placed on the third stator plate (9c), on which [coils] an end plate (9d) forming the second end area of the stator (1) is placed.
8. A valve drive in accordance with one of the preceding claims, **characterized in that**, at least in the area of the bushing (8), at least one pair of guide elements (13a, 13b) is positioned in one of the stator plates (9a-9c), which elements fit closely on both sides of the rotor plate (11) or on the rotor bar (14), at least in sections, and orient the rotor (12) into the bushings (8) in a clamping-free manner.
9. A valve drive in accordance with claim 8, **characterized in that**, the guide elements (13a, 13b) are inserted either into grooves (5) of the stator plate (9a, 9b, 9c) or into grooves of the rotor plate (11).
10. A valve drive in accordance with one of the preceding claims, **characterized in that**, every current coil (18) is penetrated by a rod-shaped magnetic core (15) which, for the closing of the magnetic circuit with its ends, contacts the stator plates (9a, 9b or 9c, 9d, respectively) corresponding to the current coil (18).

11. A valve drive in accordance with claim 1, **characterized in that**, several magnetic parts (21) are positioned in several series of magnets (X1, X2) in the rotor plate (11) positioned in parallel one above the other, whereby the series of magnets (X1, X2) are inclined opposite to the horizontal orientation of the tooth area (20).
12. A valve drive in accordance with claim 1, **characterized in that**, several magnetic parts (21) in the rotor plate (11) are accommodated in several series of magnets (X1, X2) positioned in parallel, one above the other, whereby the series of magnets (X1, X2) are oriented horizontally in the rotor plate (11), while at least one pair of stator plates (9b, 9c) provided with tooth areas (20) is inclined opposite the series of magnets (X1, X2).
13. A valve drive in accordance with claim 1, **characterized in that**, the rotor plate (11) has an oblong slot (6) between two rotor bars (14), which [slot] is, for the accommodation of a first stator plate (9a) corresponding to the stator (1), adjusted to the length and the thickness of the stator plate (9a) in a manner corresponding to the clearance.
14. A valve drive in accordance with claim 13, **characterized in that**, the clearance existing between the thickness of the stator plate (9a) and the oblong slot (6) is at least as great as the work stroke of the rotor (12).